S 363.7394 H2fss
Fact sheet, superfund site newsletter

MONTANA STATE LIBRARY
S 363.7394 H2fss 1987 c.1
Fact sheet, superfund site newsletter /
3 0864 00064563 3

Hazardous Waste Bureau Nov. 1987

FACT SHEET

SUPERFUND SITE NEWSLETTER

STATE DOCUMENTS COLLECTION
JUL 17 1990
MONTANA STATE LIBRARY
1515 E. 6th AVE.
HELENA, MONTANA 59620

Researchers used a high-tech method, called X-Ray Flourescence (XRF), to analyze suspected tailings along Silver Bow Creek. (MDHES photo)

INTRODUCTION

Dear Reader,

Much has happened on the Silver Bow Creek Superfund site since the last fact sheet a year ago. The intricate network of studies is moving smoothly, especially considering the huge number of people involved.

The site is currently in the Phase II remedial investigation (RI) stage. The Phase I RI was completed earlier this year. During the year, Butte officially became part of the site.

Because of the many studies and the complexity of the Silver Bow Creek site project, the Montana Department of Health and Environmental Sciences (MDHES) Solid and Hazardous Waste Bureau plans to begin putting out these fact sheets more often — several times a year.

On the last page is a form to fill out if you wish to be added to our mailing list. If you have any comments about this fact sheet or would like to see specific issues covered in upcoming fact sheets, please send your suggestions to us in care of Janie Stiles.

SILVER BOW CREEK STUDIES MOVING ALONG

Researchers have been working through most of the summer conducting numerous studies on the Silver Bow Creek site. The main focus now is on the Warm Springs Pond system and a study on revegetating the streambank where tailings have killed the plant life. This revegetation study is known as the Streambank Tailings and Revegetation Study or "STARS".

Following is a brief overview of the studies and their current status:

1. Warm Springs Ponds Investigation

The Warm Springs Pond system safeguards the Clark Fork River from contaminated water and sediments flowing down Silver Bow Creek. The Anaconda Company put the pond system into operation in 1911 to trap sediments carried down the creek from mining and smelting operations in Butte and Anaconda. The ponds slowed the creek water so the contaminated sediments would settle to the bottom. Lime was added to cause contaminants in solution to precipitate in the ponds.

The Montana Department of Health and Environmental Sciences (MDHES) is evaluating the efficiency of the pond system and potential methods to improve these factors. If the pond system were to give way now, during an exceptionally large flood, it would release millions of tons of metal-laden sediments into the Clark Fork River.

The Warm Springs Pond studies began Sept. 27 with a marathon 24-hour sampling session. The purpose of the 24-hour session was for the researchers to get a better idea of the changes which take place in the pond during different times of day. Contractors started sampling at the ponds at 11 a.m. Tuesday and went straight through the night until 11 a.m. the next day. This sampling will take place quarterly for three more sessions.

Researchers will take samples of sediments, pond water and groundwater in and around the ponds. The results of the tests will help determine how well the ponds operate and what factors control the efficiency of the system.

The researchers will test the water and sediments for factors to include pH, hardness, dissolved oxygen, temperature, and many others. These factors determine how well the ponds remove metals from Silver Bow Creek which joins Mill-Willow and becomes the Clark Fork River at the downstream

CONT. ON PAGE 2

PLEASE RETURN

CONT. FROM PAGE 1

end of the pond system.

MDHES will consider, at a minimum, the following alternatives: no action, pond reconstruction or expansion for better stability, and complete removal of the pond system.

2. Streambank Tailings and Revegetation Studies (STARS)

Large amounts of tailings have been deposited on the banks of Silver Bow and Warm Springs creeks. These tailings are rich in metals and are often toxic to plantlife. In many places along Silver Bow Creek, one can find the evidence of these tailings, called "slickins," which are bare areas of ground where little or no plant life can grow.

These exposed slickins are subject to wind and water erosion. The MDHES is overseeing a study to consider the possibility of treating the contaminated soils and then planting hardy vegetation adapted to high metals concentrations. Revegetation is a potentially low-cost option for addressing tailings in certain locations. A major question to be answered during this study is long-term reliability. Existing technical information is of limited use on this subject.

The goal of this investigation is to determine whether revegetation can stop the leaching of contaminants into the soil and ground water, and reduce windblown contaminants and those carried downstream during high flow.

Digging out and removing all the affected soil may be required in some areas under certain conditions. However, the area under study now includes 27 miles of streamside on Silver Bow Creek, totalling millions of cubic yards of soil.

In the first phase of STARS, researchers at Montana State University will conduct greenhouse tests to find plant species best suited to a metal-rich environment. Researchers will also categorize the different types of tailings present in areas along the creek, so they can suggest which type of action to take in each area.

In the second phase of the study, the actual revegetation will occur and the MDHES will evaluate how successful the revegetation is for control of these contaminated soils.

3. Flood Modelling Study

Drawing upon historical information about rainfall, snowmelt, etc., engineers and scientists will compute what would happen should a major flood occur. A computer will be fed information about natural hydrologic events, bridges and dams in the system and even the Warm Springs Ponds so that a flood model of the pond system can be made.

There are two purposes of the study: 1) Scientists will project how much water will go into the ponds during 10-, 25-, and 100-year flood events. From this information, they can make determinations about the needed size of the pond system. 2) Scientists will be able to predict the size and condition of the flood plain during the various flood events. This information will be used in selected corrective actions.

Much of the data needed for the modelling has been collected. The contractors on the project hope to start the computer modelling by early 1988.

4. Domestic Well Sampling

Domestic wells were sampled this past summer in the Clark Fork drain-

WHY WE NEED MORE STUDIES

A question the state is often asked is "Why do we need more studies on the Clark Fork?". The question is often followed by the comment, "The Superfund process on the Silver Bow Creek site seems to be taking forever. Let's move ahead."

The answer is relatively simple and following are the reasons for the extensive study:

1) Legal requirements

Poor documentation won't hold up in legal proceedings and the process on the Clark Fork River is extremely complex. Even in situations where the responsible party consents to clean up, the MDHES must have carefully prepared data for any legal problems that may arise. Furthermore, careful documentation is needed for the MDHES to obtain funding from the federal government.

Legal proceedings to recover money the government has spent on the site often become long and complex. The studies conducted on the Silver Bow Creek site are being carefully documented in case court action is required. Careful documentation takes time.

2) Site complexity

The Silver Bow Creek site, aside from being one of the largest Superfund sites in the nation, is unlike most other sites. Most Superfund sites cover little more than a few acres, but the Silver Bow Creek site covers Butte and then runs down Silver Bow Creek to the Warm Springs Ponds and from there down the Clark Fork River to Milltown.

Three other sites are adjacent to the Silver Bow Creek site, and their contamination interacts with contaminants at the Silver Bow Creek site. Contamination on the site varies from area to area. While an abandoned mill left mercury in Walkerville, tailings rich in a combination of metals exist along Silver Bow Creek.

The MDHES and EPA are currently working to minimize the complexity of the site by dividing it into operable units. Operable units are sections or areas of the site with potentially common problems and common solutions. The operable unit system is designed to make the site more manageable because the complexity and the size of the project is reduced. The use of operable units helps in focusing on the highest priorities for corrective action. Operable units are a way of breaking the site down into simpler issues.

STATE ADDS TOLL-FREE SUPERFUND HOTLINE

Montanans with questions, comments or concerns about the Superfund program now have a free hotline to call.

Montana Department of Health and Environmental Sciences installed the hotline in June.

The line is in operation Monday through Friday from 8 a.m. to 5 p.m. Callers with questions about specific sites, or the Superfund program in general, are encouraged to use the hotline. The hotline can also help callers who aren't sure who they need to talk to about a Superfund issue.

MDHES installed the hotline so the public doesn't waste money while being transferred from department to department just to ask a question.

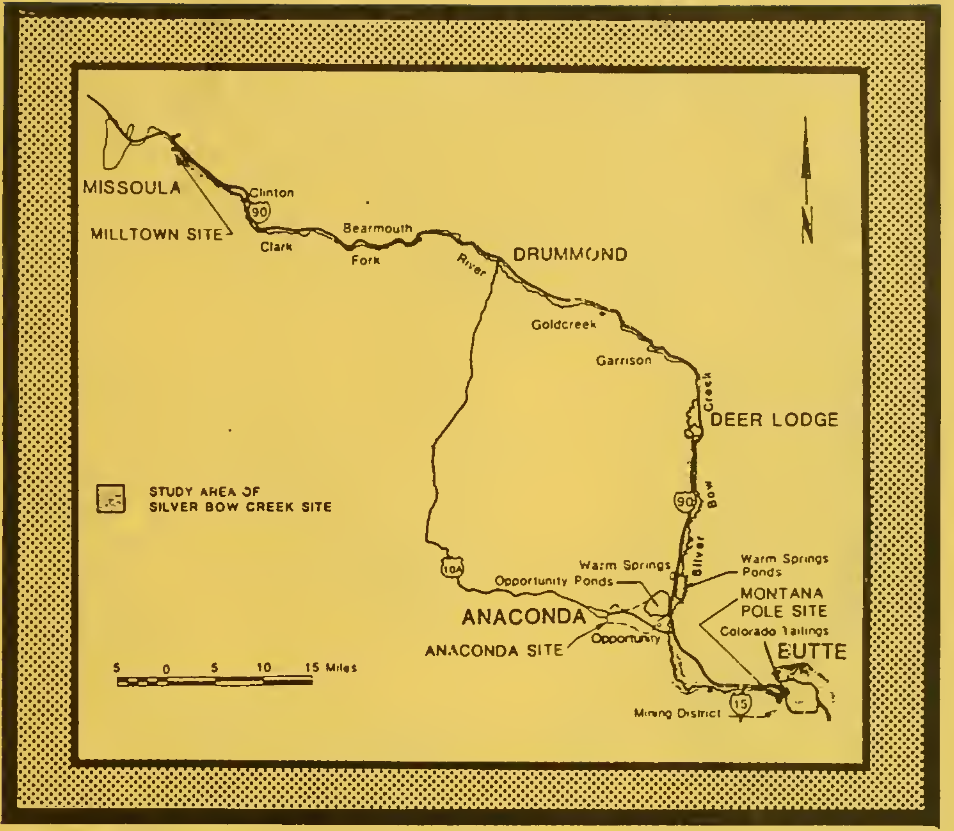
The hotline number is 1-800-648-8465.

age from the Warm Springs Ponds to Milltown to determine whether contaminants may have migrated through the soils into the groundwater.

This past summer, more than 700 of the 1,500 wells in the area were tested for "field parameters" which include basic tests such as pH and conductivity. From those wells, 80 were sampled and more thorough tests are being run to determine if and how much contamination from tailings may have leached into those wells.

Samplers tried to get an even distribution of wells and tried to choose wells that would most likely be contaminated if the metals from the tailings have been leaching. However, people whose wells were tested should not assume their wells are contaminated simply because they were tested.

All people whose wells were tested will be notified of the test results and the notice letters will point out contamination if any is found.



5. Surface Soils Study

Soils along the Clark Fork River were tested this summer to determine where the tailings are and what metals they contain. A high-tech X-Ray Fluorescence Spectrometer (XRF), originally developed for use on Mars, was used in the study. In the field, scientists simply insert in the XRF a sample of the soil they suspect to contain metal-rich tailings and the instrument quickly gives a read-out of the metals concentrations.

The results of the XRF studies will be compared to scanner photography of the Clark Fork flood plain. The information developed using the XRF is used to calibrate the remote scanner photography. Once this is done, the MDHES will determine where the contaminants are most likely distributed in the entire area photographed so that corrective action can be planned. This method is very inexpensive compared to exhaustively sampling the entire site.

BUTTE OFFICIALLY ADDED TO SILVER BOW CREEK SITE

The city of Butte was finalized this year as an addition to the Silver Bow Creek site. The site's name is the Butte Addition and includes Butte, Walkerville and some outlying areas. (see map)

The EPA took the lead on this portion of the site while the state maintains the lead on the Silver Bow Creek site overall. The split will help the MDHES and the EPA deal with the fact that the two portions are on different time frames. The Butte Addition is in the remedial investigation planning phase.

This past summer, the EPA conducted a soils screening study in Butte to determine how much contamination there is on the site and how far it has spread. The study results should be out early in 1988 and will help the EPA prioritize further work.

WALKERVILLE REMOVAL ACTION

Walkerville, a separate incorporated town adjacent to the northern edge of Butte, is slated for a removal action which EPA officials hope will begin this year (1987). A removal action is performed when contaminants present an imminent threat to human health or the environment. In the case of Walkerville, high levels of mercury and lead in the soil present a health risk to residents of the community.

The Walkerville removal will include several activities but will focus on removal of dumps and soils containing levels of metals which are located above and/or adjacent to residential areas. The materials removed will be placed in secure areas where they cannot be spread by wind or water erosion back into the residential areas.

One of the areas slated for removal and reclamation is the Sherman Ballfield which was created by leveling an area of mill waste piles. Levels of lead as high as six percent have been found adjacent to this field. Other areas to be removed and/or reclaimed include the Moulton, Paymaster, and Lexington dump areas and several yards and properties adjacent to these dumps.

Reclamation will generally consist of dump and/or surface soils being removed, application of lime or limestone, replacement of surface soil and planting of a vegetative cover.

The EPA and the MDHES are currently negotiating on the Walkerville removal action with the named responsible parties—Anaconda Minerals Company and Central Butte Mining Corporation.

THE MINE FLOODING ISSUE

For the past several years the Berkeley Pit has been filling with groundwater from abandoned mine shafts. During mining, water was pumped out of the shafts but ARCO discontinued the practice in 1982.

CONT. ON PAGE 4

CONT. FROM PAGE 3

Thus, water is also rising in the mine shafts under Butte. Currently the water in the pit is more than 600 feet deep and flow into the pit is about 7,000 gallons per minute. The water in the pit is at the 4,927 foot level and is rising at a rate of six to eight feet per month.

The EPA and MDHES are studying the rising water in the pit because of the future possibility of contaminated mine water spreading into the surface aquifer and Silver Bow Creek. The suspected flood stage may occur when the water reaches the "alluvial" groundwater boundary which is at the 5,320 foot elevation.

Another area being investigated is the "West Camp" or Travona Shaft mine flooding area. The mine waters in this area are approximately 65 feet from the ground surface at the relief well (Well No. 21) located close to Silver Bow Creek. Mine water is rising two to four feet per month and may present water quality problems in Silver Bow Creek within the next two to three years. The EPA has approval to obtain funding in 1988 to address this potential problem.

FISH KILL — WHAT'S THE LATEST?

In the early part of July this year on the Mill-Willow by-pass ditch near the Warm Springs Ponds, a fish kill occurred after an intense thunderstorm. Apparently, the sudden, extra water in the creek washed tailings, rich in heavy metals, downstream and killed an undetermined number of fish.

In August, the MDHES, the EPA, the Department of Fish, Wildlife and Parks (DFWP), the Clark Fork Coalition and the Anaconda Company met at the site of the fish kill to discuss possible short-term solutions to the problem. A number of good ideas were presented at the meeting. A Deer Lodge DFWP fisheries biologist presented an idea which meeting participants agreed appeared to have the greatest potential.

The Anaconda Company, now owned by ARCO has evaluated the DFWP option and proposed to build an earthen dam on the by-pass each summer to divert water into the Warm Springs Pond system. Should a thunderstorm occur in the area along Mill-Willow, above the dam, any contaminants washed into the stream will go into the Warm Springs Ponds for treatment.

The dam will be put in place each spring after the run-off ends and will be taken out late in the fall. The dam is only intended to divert the sudden flows associated with these thunderstorms.

Currently, ARCO is in the process of getting two permits for the dam. ARCO hopes to construct the dam in late spring 1988 so fish kills from this source can be minimized next summer.

WHERE TO FIND NEW DOCUMENTS OF PUBLIC INTEREST

Following is a list of Silver Bow Creek project documents available to the public. Following the document description is a list of the places you will find them. Also in the public files are the Silver Bow Creek Remedial Investigation Studies released earlier this year.

* *Field Operations Plan for the Warm Springs Treatment Ponds Investigations.* This plan provides guidance for the collection of data at the Warm Springs Ponds. Data will be collected for surface water, ground water, sediments and pore water.

* *Quality Assurance Plan for Silver Bow Creek Flood Modelling Study.* This plan gives the requirements for field activities, including surveys and sampling, for the flood study to ensure precision and completeness.

* *Laboratory Operations Plan for the Warm Springs Treatment Ponds Investigations.* This plan is a guide for laboratory operations during analysis of water which flows into the Warm Springs Pond system.

* *Quality Assurance Project Plan for the Warm Springs Treatment Ponds Investigation.* This plan is the basic guidance for samplers at the Warm Springs Ponds to ensure accuracy during testing.

* *Laboratory Analytical Protocol for Flood Modelling Study on Silver Bow Creek.* This plan outlines laboratory procedure for the study of sediment collected from Silver Bow Creek and its tributaries.

WHERE TO FIND THE REPORTS

Grant-Kohrs Park Office
316 Main Street, Deer Lodge
Monday - Friday 7:30 a.m. - 4:30 p.m.
Weekends and Holidays: Closed

Butte Public Library
106 West Broadway, Butte
Sunday, Monday - closed.
Tuesday: 12 p.m. - 9 p.m.
Wednesday: 9 a.m. - 9 p.m.
Thursday: 9 a.m. - 6 p.m.

Mansfield Library
University of Montana, Missoula
Monday - Thursday: 8 a.m. - 11 p.m.
Friday: 8 a.m. - 6 p.m.
Saturday: 1 p.m. - 6 p.m.
Sunday: 1 p.m. - 11 p.m.

Montana Tech Library
West Park Street, Butte
Monday - Thursday: 8 a.m. - 10 p.m.
Friday: 8 a.m. - 5 p.m.
Saturday: 9 a.m. - 5 p.m.
Sunday: 1 - 10 p.m.

Hearst Free Library
4th and Main, Anaconda
Monday - Thursday: 10 a.m. - 9 p.m.
Friday: 9 a.m. - 8 p.m.
Saturday: 9 a.m. - 5 p.m.

Montana Department of Health and Environmental Sciences
Cogswell Building, Room B201, Helena
Monday - Friday: 8 a.m. - 5 p.m.
Weekends and holidays: Closed

MAILING LIST ADDITIONS

The MDHES maintains a mailing list of groups and individuals interested in the Silver Bow Creek site. If you did not receive this fact sheet by mail and would like to be added to our mailing list for the site, please send your name, address, city, state and zip code. Please fill out this form if you have been on our mailing list and have recently changed your address.

Please send your addition or change to:

Janie Stiles
Public Information Officer
Montana Department of Health and Environmental Sciences
Cogswell Building, Room B201
Helena, MT 59620

Name______________________

Address_____________________

City, State, Zip_________________